NUCLEAR DIVISION NEWS

UNION CARBIDE

A Newspaper for Employees of the Nuclear Division, Union Carbide Corporation

Vol. 1 — No. 7 | OAK RIDGE, TENNESSEE | Thursday, May 7, 1970

135068

RED CROSS BLOODMOBILE VISIT — More than 246 persons gave blood at the recent visit of the Red Cross Bloodmobile at the Oak Ridge Armory. Of those volunteering their blood, 164 were employees of the Nuclear Division.

Next Visits in June

164 Carbide Donors Give Blood

Some 246 persons — including about 164 Nuclear Division employees — donated blood last month during the first visit of the American Red Cross Bloodmobile under the newly organized Oak Ridge-Anderson County Blood Program.

Although the county quota of 270 pints of blood was not met, program organizers were "still happy about the first visit."

A total of 294 persons reported to give blood and only 48 were rejected. Some were turned down because of colds, and others because of a medical condition. Each potential donor was screened and checked very carefully, and still the average time per donor was about 45 minutes.

Two June Visits

"Now we have our work cut out for us to get ready for the two visits June 9 and 10," reports Jack Wilson, an AEC employee and chairman of the Oak Ridge Chapter of the American Red Cross. "But the experience of the first visit should help," he said.

The June goal will be a total of 564 pints of blood—270 for each visit on June 9 and June 10 and an extra 24 for the amount that the Bloodmobile fell short on the April 24 trip.

The Blood Program is committed to raising a total of 810 pints for the portion of the fiscal year in which Oak Ridge and Anderson County are to be covered by the Red Cross Regional Blood Center in Nashville. After June 30, a new quota will be assigned which will be based on actual blood usage under the program.

Volunteers Praised

Nuclear Division employees giving blood praised the volunteer efforts of the Blood Program staff. In addition to the Bloodmobile health personnel, eight registered nurses—who usually earn about $30 per day—donated their time at no charge. Dozens of other Red Cross Gray Ladies and volunteers helped to keep things going smoothly.

"We are especially grateful to the Nuclear Division and AEC personnel for their support," Wilson said.

Persons who have not yet volunteered may do so by calling Red Cross chapters in Oak Ridge or in Clinton. Donors will be scheduled by a special committee of Red Cross volunteers.

Cost Cut

Volunteer donations are essential to replace the blood actually

(Continued on Page 5)

Berkeley Team Discovers Element 105 — 'Hahnium'

The discovery of element 105 has been reported by a team of scientists in the University of California Lawrence Radiation Laboratory, Berkeley.

The scientists suggested a name for the new element, hahnium, after the late German scientist, Otto Hahn, who won the Nobel Prize for the discovery of nuclear fission. They proposed Ha as the chemical symbol for the new element.

Found Element 104

The same group of scientists reported just a year ago the discovery of element 104, for which they suggested last November the name, rutherfordium, after the great nuclear pioneer, Lord Rutherford.

The research, supported by the Atomic Energy Commission, was reported at a meeting of the American Physical Society by Albert Ghiorso, a senior nuclear scientist in the Lawrence Radiation Laboratory and a co-discoverer of elements 95 through 104.

Target Bombarded

His colleagues in the experiment are Matti Nurmia, University of Helsinki, Finland, physicist who joined the Berkeley group in 1966; Kari A. Y. Eskola, visiting scientist from the University of Finland; James A. Harris, nuclear scientist; and Mrs. Pirkko L. Eskola, a post-graduate student, wife of Kari, and mother of a two-year old daughter.

The discovery was made by bombarding a target in the Heavy Ion Linear Accelerator (HILAC) with a beam of 84 million electron volt (MeV) nitrogen nuclei. The target was 60 micrograms (two millionths of an ounce) of californium-249 (element 98), a rare, man-made isotope.

New Atom Formed

When a nitrogen-15 nucleus was absorbed by a californium-249 nucleus, four neutrons were emitted and a new atom of element 105 was formed: hahnium-260.

The half life of hahnium-260 turns out to be 1.6 seconds. This is much longer than the milliseconds (thousandths of seconds) that had been predicted on the basis of knowledge gained from other elements.

Sure of Results

Ghiorso said there is no doubt about the accuracy of the observations and the interpretation of the results. The 105 atoms were made in abundance, in comparison with many other experiments in this field. Some six atoms were made during each hour of experimentation. The first 105 atoms were detected conclusively on March 5, 1970, and the total number observed is many hundred. There was some evidence as much as a year earlier that these atoms had been formed in Berkeley experiments by the method described.

Observed Directly

The decay of the 105 nuclei was observed directly. The alpha particles emitted in the decay were found to have an energy of 9.1 MeV. The combination of half-life and alpha particle energy provided a unique "fingerprint" distinguishing the atoms from all other isotopes and elements in the Periodic Chart of the Elements.

The sophistication of the experiment permitted still another proof of its validity—a time correlation in which the decay of the 105 atoms was shown to precede the decay of the daughter product, lawrencium-256. The decays of the daughter products, whose properties are well known, matched, both in number and time, the decay of hahnium-260.

Corporation, Toray To Exchange Data

Union Carbide Corporation and Toray Industries, Inc. of Japan have reached agreement on an exchange of technology pertaining to the manufacture of high-performance carbon and graphite fibers and of articles fabricated from such fibers.

Under the agreement, technology relating to the manufacture of specially engineered fiber precursors for the manufacture of carbon and graphite fibers will be given to Union Carbide's Carbon Products Division, with Toray Industries receiving know-how on carbonizing and graphitizing such fibers. Information concerning the manufacture of "pre-preg" materials and other articles from these special fibers will also be exchanged.

CPS - Rated Secretaries Offered Special Method To Earn College Credit

The University of Tennessee is offering a special program for Certified Professional Secretaries to earn academic credits.

Recognizing the high proficiency required for a CPS, the University will allow CPS secretaries to enroll in certain classes and be excused from class attendance. An assigned project and appropriate special examinations are taken as designated by the instructor, and credit is recorded.

If the following courses have not already been taken for credit by the secretary, she may enroll in Advanced Shorthand and Transcription; Office Equipment Problems; Business Letter Writing; Supervised Office Experience; and Office Systems. Each course carries three hours credit so that the maximum that can be gained by this method is 18 hours of credit.

The courses are offered through UT's Department of Office Administration, College of Business Administration.

Carbide Sales Set First-Quarter High

Sales of Union Carbide and its consolidated subsidiaries throughout the world reached a new first-quarter high of $725.9 million in 1970. This result, representing an increase of 7 percent over 1969 first-quarter sales of $680.9 million, was achieved in spite of the slowdown in the domestic economy, which has affected much of Union Carbide's business. Sales outside the United States showed a larger gain than domestic sales.

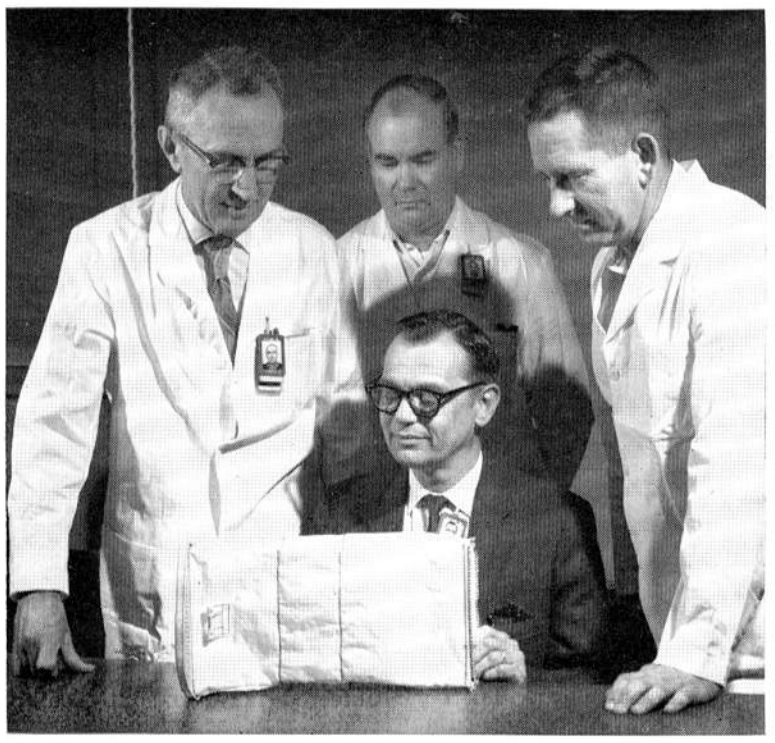
Earnings in the first quarter were $42.6 million, equivalent to 70 cents a share, down 16 percent from the 84 cents reported in the first quarter of last year. The figure for 1969, however, included a 9 cent-a-share nonrecurring gain due to the sale of a subsidiary.

F. Perry Wilson, president of the corporation, said that earnings are expected to improve as the year progresses, as was indicated at a meeting with New York analysts last month. One reason they fell below the previous year in the first quarter was that the 1.2 billion-pound-per-year ethylene plant at Texas City, which was damaged in an explosion last October, did not get back into operation until the first week in April, later than had been expected. Also, costs in some areas, as anticipated, continued to rise faster than the corporation could offset them through improvements in operating efficiency or through higher selling prices.

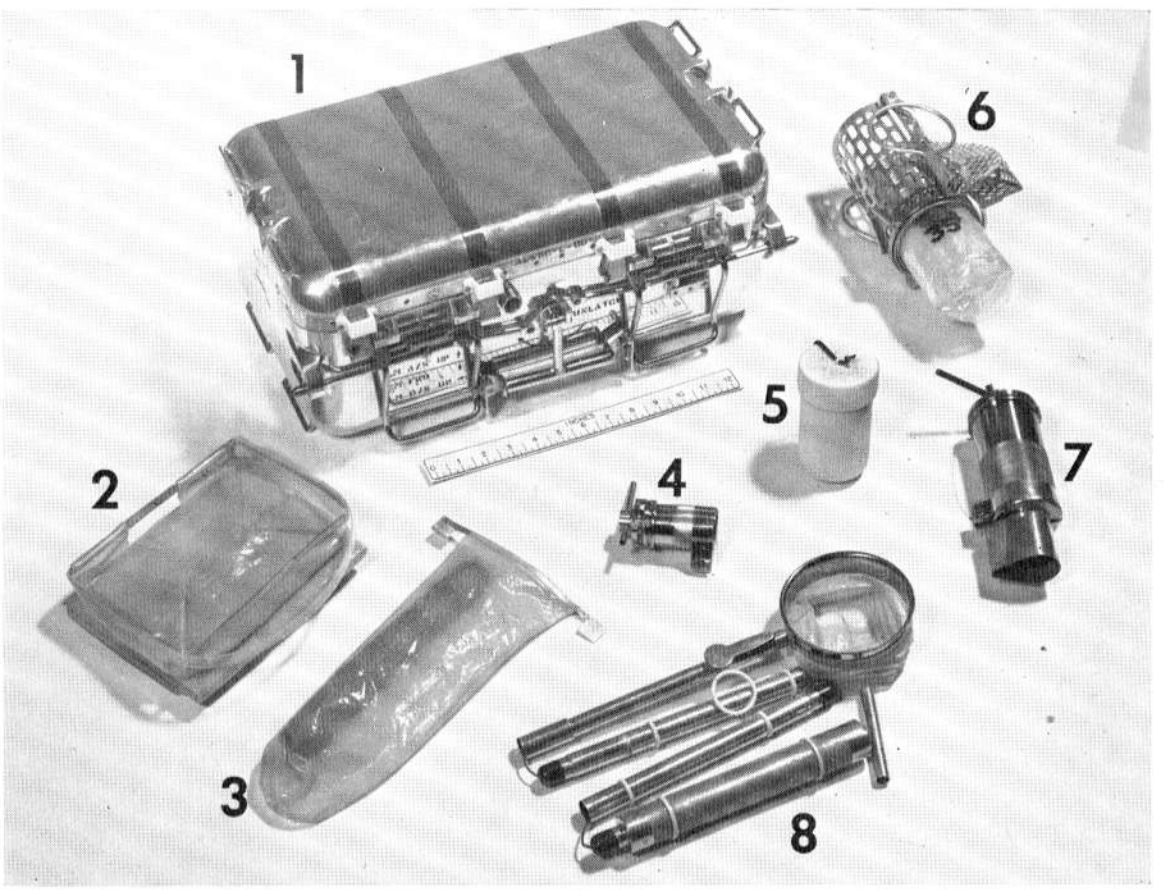
For the year as a whole, Mr. Wilson stated, the corporation is looking for an increase in worldwide sales of about 5 percent, with firmer selling prices and gains in volume both within and outside the United States. Unit plant costs are expected to improve this year despite further increases in labor costs and fringe benefits, as well as higher costs for purchased materials. He said that provided sales are in line with expectations, earnings for the year should be higher than they were in 1969.

Mr. Wilson said that Union Carbide had been examining each of its many different businesses to make sure that they fit well with the corporation's long-range growth plans. He added that those that do not may be sold or discontinued. He emphasized that Union Carbide intends to remain a growth company and that to accomplish this it must have a satisfactory balance between mature and newer proprietary businesses, particularly in the consumer and related products fields. This, he said, will help offset swings in the economy because the industrial and consumer product businesses are basically contracyclical.

Mr. Wilson made reference to the corporation's very successful line of Glad plastic bags and wrapping materials, which came literally from nowhere five years ago to the position of market leader today. He disclosed that other new and exciting consumer product candidates are in various stages of commercial development.



DEVELOPMENT TEAM — A weigh bag successfully fabricated through the assistance of Y-12 development personnel is examined by H. D. Whitehead, seated, and standing, from left to right, J. A. Martin, C. E. Miller and J. E. White, all of Plastics Section.



CONTRIBUTIONS TO MOON PROGRAM—Astronauts in the Apollo series continue to use basic equipment designed and fabricated at the Nuclear Division's Y-12 Plant and Oak Ridge National Laboratory. The items include: (1) Apollo lunar sample return container ("moonbox"); (2) weigh bag; (3) organic sampler; (4) gas analysis sample container; (5) magnetic shield sample container; (6) documented sample bags with dispenser; (7) lunar environmental sample container; and (8) contingency sample return container.

Used in Apollo Missions

Y-12 Develops Plastic for Bags

A major portion of the development of the material for the plastic-type bags used in the series of Apollo landing missions was performed by personnel of the Plastics Section of the Ceramics and Plastics Department, Development Division.

Contributing to this development have been J. A. Martin, C. E. Miller, and J. E. White along with Section Head H. D. Whitehead and Department Superintendent W. E. Tewes.

Several Uses

The bags used in the Apollo series include weigh bags for bulk geological samples, numerous small bags for documented samples, organic control sample bags, and the solar wind composition bags.

Typical of these was the development of the weigh bag which consists of two commercially-obtained materials — fluorethylenepropylene and tetrafluorethylene. The former is a film-like plastic, while the latter is a rugged cloth-like material.

Materials Bonded

The two materials, each cut into strips 24" x 32", are placed together in a 100-ton press and bonded through a combination of heat and pressure. The bonded material then is sent to a Knoxville firm which sews it into the desired bag form.

The plastic coating seals the bag so that dust will not escape. The cloth structure provides the necessary strength to the material so that it will not crack and tear during lunar use.

Manufacturing Engineers To Hear Field Tonight At Knoxville Meeting

The Knoxville Chapter 107 of the Society of Manufacturing Engineers will meet tonight—Thursday, May 7—at Deane Hill Country Club in Knoxville.

Dr. Michael Field, President of Metcut Research Associates, Inc., will be the guest speaker. His subject will be "Surface Integrity in Conventional and Nonconventional Machining."

A social hour will be held at 6:30 p.m., dinner at 7 p.m., and the meeting at 8 p.m. All members of SME and interested individuals are invited to attend.

$1.5 Million in New Contracts Awarded

Contracts totaling nearly $1,500,000 have been awarded by the Nuclear Division for equipment and services at the Oak Ridge facilities the Corporation operates for the U. S. Atomic Energy Commission.

Metals Goods Corporation, Memphis, Tenn., received a $1,005,168 contract for stainless steel plate and sheet, which will be used to meet requirements at all three Oak Ridge facilities for a three-year period.

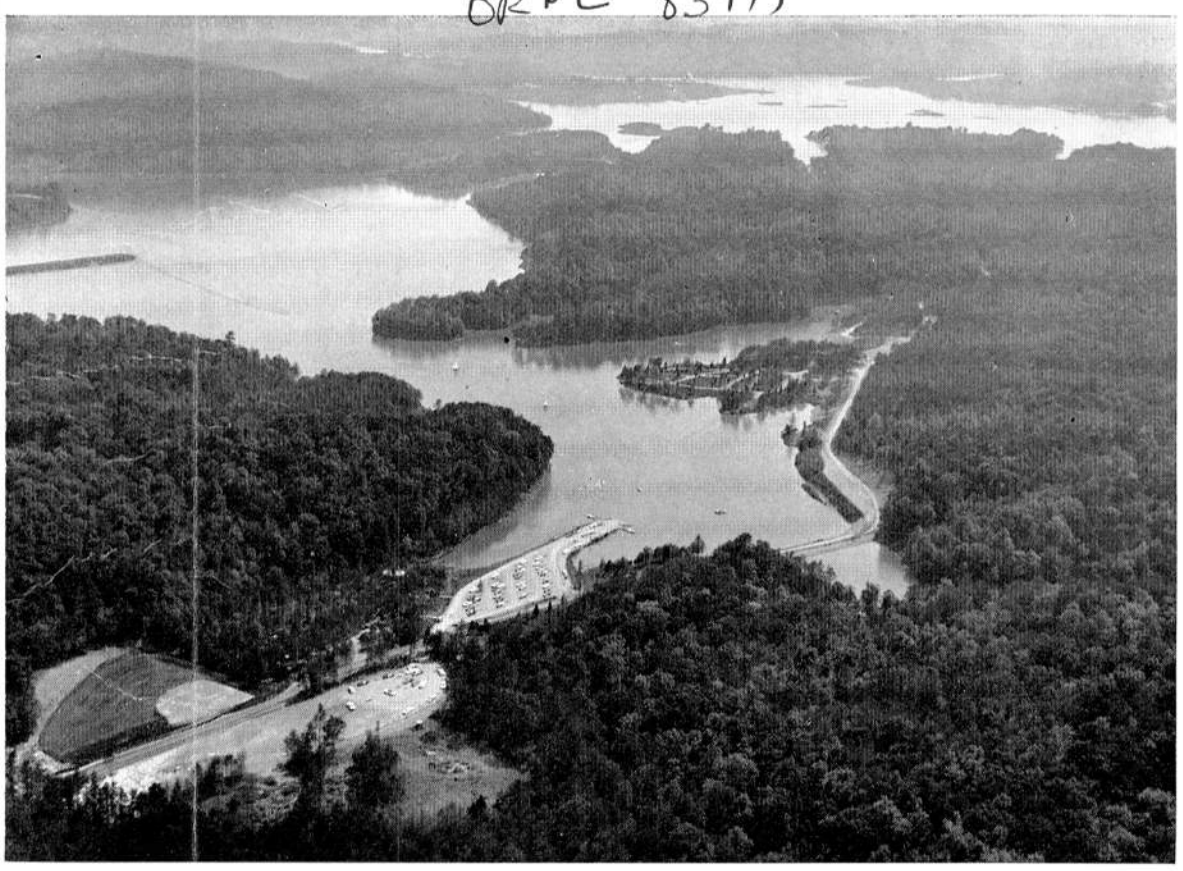
Gilmore Industries, Inc., Cleveland, Ohio, was awarded a $176,088 contract for a testing machine system to be used at the Oak Ridge Y-12 Plant.

A $111,942 contract for provision of a gas purification system for use at Oak Ridge National Laboratory was awarded the C.V.I. Corporation, Columbus, Ohio.

The Ray Miller Company, South Charleston, W. Va., received a $101,000 contract for provision of stainless steel parts for all three Oak Ridge facilities for a three-year period.

A $102,000 contract was awarded Building Service and Maintenance Company, Knoxville, for provision of daily cleaning services at Charlotte Hall and Cheyenne Hall during the next three years.

WEIGH BAG — J. A. Martin poses with a completed weigh bag to be used in a future Apollo moon landing mission. A weigh bag is used to measure and to stow bulk samples of moon rocks collected by astronauts.



RECREATION CENTER — Boaters, fishermen, softball players, and those just out for a picnic or a walk through the woods are enjoying Clark Center Recreation Park, which opened April 13. Those entering the park are required to have CCRP decals on the front bumper of their car in order to enter. Decals are available through the Recreation Departments at Y-12, Building 9711-5, telephone 3-7109; or ORGDP, Building K-1002, telephone 3-3097.

UNION CARBIDE

—Y-12 BULLETIN

Thursday, May 7, 1970

135055

WELCOMED TO OAK RIDGE — Harold M. Agnew (center), who will become Director of the Los Alamos Scientific Laboratory effective September 1, recently visited the Oak Ridge Y-12 Plant where he was welcomed by P. R. Vanstrum, Vice President of the Nuclear Division (left), and J. M. Case, Y-12 Plant Superintendent.

New Director at Los Alamos Visits Y-12 Plant and ORNL

The newly-appointed Director of the Los Alamos Scientific Laboratory recently visited Nuclear Division facilities in Oak Ridge. Harold M. Agnew, a pioneer in the field of nuclear research, visited both the Oak Ridge Y-12 Plant and Oak Ridge National Laboratory.

Bradbury Retires

Dr. Agnew succeeds Norris E. Bradbury, who is retiring after 25 years as director. The newly-appointed director is currently physics division leader at LASL. In addition to applied research, his responsibilities have included direction of work in fundamental physical and chemical research. He received the Atomic Energy Commission's E. O. Lawrence Award in 1966 and is a Fellow in the American Physical Society.

Dr. Agnew has been involved in atomic energy programs since 1943, when he was one of a group working with Enrico Fermi on the first nuclear fission chain reaction at the University of Chicago. He came to Los Alamos the following year.

Doctorate Under Fermi

In 1946, he returned to Chicago to earn his doctorate under Fermi. Three years later he returned to Los Alamos to resume work at the Laboratory. Except for the period from 1962 to 1964, when he was scientific adviser to the North Atlantic Treaty Organization, he has been associated with the Los Alamos Laboratory.

Control Tool Study Is Being Conducted

The Oak Ridge Y-12 Plant is sponsoring a comprehensive survey to collect and analyze all available information relating to adaptive control of machine tools.

Adaptive control refers to any system which enables a machine tool to monitor its own performance against an optimum condition and to continually make adjustments as needed.

The survey is being conducted by Metcut Research Associates, Cincinnati, Ohio. The firm is collecting and analyzing information concerning systems for controlling accuracy, surface integrity, vibration, chatter and tool wear. The survey also will attempt to determine cost control aspects, instrumentation and interpretation. The information will be obtained by contacting hundreds of machine tool and instrumentation developers, manufacturers and users.

The survey is one of several approaches Y-12 has taken in recent years as part of the continuing program to upgrade machine tool capabilities. Past Y-12 machine tool development programs have led to innovations in laser and white light interferometry, automatic toolsetting systems, air-bearing spindles and steady rests, heat sensors and numerically-controlled machining.

Secretaries Vote Honor for Snyder

H. G. P. Snyder, Superintendent of Industrial Relations, has been honored by the Oak Ridge Chapter of the National Secretaries Association (International) for "his influential and diligent support" of NSA.

Snyder received a special "certificate of recognition" at the annual NSA 'Bosses' Open House" last month. This was the first time that the Oak Ridge Chapter has made such an award. Local attorney J. B. Scott was named "Boss of the Year."

Snyder has been active in the Oak Ridge community, serving, among other jobs, as president of the Oak Ridge Chamber of Commerce. He is presently serving on the city Human Resources Development Board.

6-14764

U. S. PATENT APPLICATION—A patent application has been filed on a joint invention of C. R. Schmitt, right, and J. M. Schreyer, center. The invention 'Carbon Composite Structures and Method for Making Same,' resulted in the application. W. J. Yaggi, Development superintendent, presented their Dollar Letters.

6-14763

ANOTHER PATENT APPLICATION—Filed recently was a patent application on 'Thermal Insulation and Method of Manufacturing Thereof,' a development here in Y-12. W. J. Wilcox, Technical Director for the Nuclear Division, presents J. M. Googin his Dollar Letter; and J. J. Asbury receives his from W. J. Yaggi, superintendent of Development.

Congratulations to the following Y-12ers who celebrate late April and early May anniversaries with Union Carbide Corporation.

25 YEARS

D. Virginia Hill, Laboratory Operations, April 17.

Oller C. Collins, Electrical and Electronics, April 24.

James C. Booher, Guard Department, April 25.

Clarence E. Beckham, Stores Department, April 30.

Thomas A. Gardner, Buildings, Grounds and Maintenance Department, May 4.

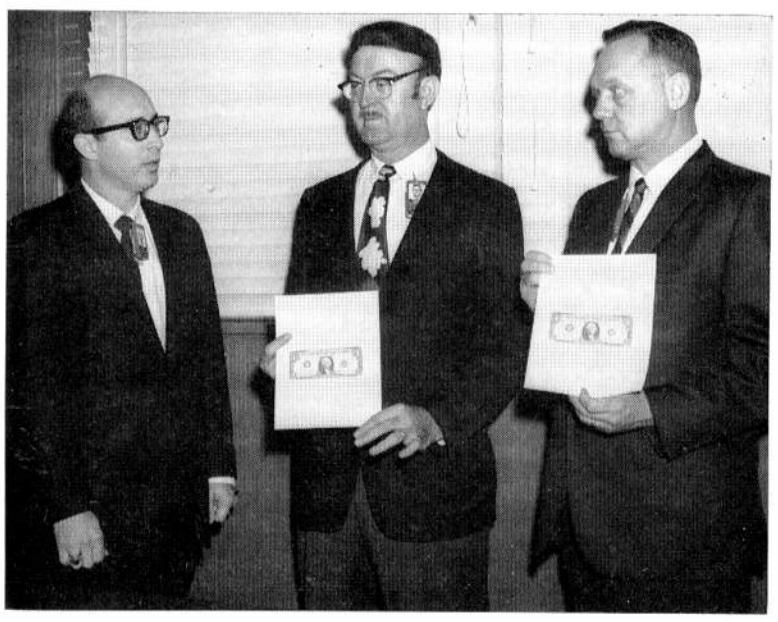
20 YEARS

Roy W. Coker, Electrical and Electronics, April 24.

(Continued on Page 4)

70 731 K-25

CERTIFICATE OF RECOGNITION — From left are Mrs. Ed (Marigrace) Kirstowsky, Mr. and Mrs. H. G. P. Snyder, and Miss Mabel Tyer, secretary to Snyder. Mrs. Kirstowsky, who was secretary to last year's "Boss of the Year," former Nuclear Division President Clarence Larson, made the presentation.



PATENT APPLICATION FILED—A patent application assigned to the United States Government has been filed on a joint invention entitled, 'Improved Program Controlled System for Tape Controlled Machines.' The inventors receive their Dollar Letters from W. J. Yaggi, left, superintendent of Development. Wayne Speller, center, and C. M. Lay, right were the inventors.

Y-12er's Son Earns Navy Bronze Star

Chief Signalman John E. McMichael was recently awarded the bronze star, and received a citation for distinguished combat service.

The citation read in part: "For meritorious service while serving with the friendly foreign forces engaged in armed conflict against the North Vietnamese and Viet Cong communist aggressors in the Republic of Vietnam from September 1968 to September, 1969. As a river patrol boat patrol officers, Chief Petty Officer McMichael participated in two hundred seven combat patrols and engaged the enemy on seven separate occasions. During those patrols, he boarded and searched countless junks and sampans, interdicted cross river traffic, inserted and extracted friendly forces in hostile territory and provided fire support for besieged units and outposts. In addition, he conducted psychological warfare operations and civic action programs. His untiring efforts were directly responsible for the constant state of readiness and successful completion of the missions assigned to his two river patrol boats. Chief Petty Officer McMichael's exemplary professionalism and devotion to duty were in keeping with the highest traditions of the United States Naval Service."

SMC John E. McMichael

McMichael has been in the Navy since August, 1950, and plans to retire this fall with 20 years duty behind him. He graduated from State Line, Miss., High School and entered service shortly thereafter. He and Mrs. McMichael have one son John E. Jr.

The navy man's father lives at Route 5, Clinton, and works in Y-12's Process Maintenance in Beta Two.

Milestones . . .

(Continued from Page 3)

Howard Nobles, General Machine Shop, April 28.

Ira Sharp, General Expediting and Auxiliary Services, May 1.

Floyd W. Manis, Buildings, Grounds and Maintenance Shops, May 4.

15 YEARS

William S. Everett Jr., Radiation Safety, April 18.

Ernest M. Coburn, General Metal Fabrication Shop, April 18.

Preston G. Hatmaker, A-2 Shops, 9212, April 24.

Billy G. Cross, General Weld Shop, April 27.

James C. Heatherly, General Metal Fabrication Shop, April 27.

James H. Whatley, General Metal Fabrication Shop, April 27.

Emmett C. Upton, Building Services Department, April 29.

Wendell L. Ellis, Research Services, April 29.

Harold B. Whitmore, Research Services, May 4.

Fred Farmer, Alpha Five Processing, May 4.

10 YEARS

Darlene K. Hunnicutt, Safety Department, April 18.

Barbara M. Roberts, Medical Department, April 25.

Richard R. Spears, Assembly Technical Staff, May 2.

Bowling News

Has Beens Win 'Classic' Match

The Has Beens, long-time members of the Classic Bowling League, took the championship title in a close match with the Markers on April 23.

In the first game, the Markers won with a 10-pin margin, 926 to 916. In the second game, the Has Beens came back with a 25-point win, 1003 to 978 for the Markers.

Entering the third game, the Has Beens had an uneasy 15-point lead, but they held on and picked up another 13 pins in the last game, winning the game by a 926 to 913 margin. In all, the Has Beens won by 28 pins.

Rolling for the new champion Has Beens were Captain J. D. McLendon, Roy Roberts, Rudy Pletz, Bob Rutherford, and William T. Mee.

Members of the runner-up Markers team are Captain J. E. Bartholomew, John H. Boyd, N. V. Shamblin, Don Troutman, and Tom Hillard.

Woodpeckers Lead

The Woodpeckers hold a thin two-and-one-half point lead, in the Tuesday night Starlite League, despite a three-point loss to the fifth-place Thunderbirds. One other three-point win was recorded as the Has Beens "shut out" the Dynopaths. Taking two points, while losing one, were the Hi-Jackers over the Wildcats and the Jaguars over the Splitters.

Individual honors were "monopolized" by Howard Crane, Hi-Jackers, whose single scores were 246-265 and serieswise with a 596-653. His team also swept the boards with a single scratch game of 947, handicap 1061, and series scores of 2647 and 2989.

Softball to Start Soon

Entries for the Softball League now total 14 teams. The Recreation Office is making arrangements for the teams to practice on Pinewood Field, where all league games will be played.

Play is tentatively set for Mondays, Tuesdays, and Thursdays at 6:15, 7:30 and 9 p.m., with Wednesdays and Fridays for rained-out games.

While the exact starting date for the league competition has not been set, it is anticipated that such play will start within the next two weeks.

Tee-Off Time Application For Wallace Hills Golf Tournament

Maryville, Tenn.

Saturday, May 23

Foursome

_____, Leader

_____

_____

_____

Leader's office phone _____

Home phone _____

Tee-off Time Preferred _____

Fill out completely and return to the Recreation Office, Building 9711-5. Deadline for entering is 4:30 p.m. Wednesday, May 20. Tee-off times will be drawn the next day, Thursday, May 21 at 8 a.m.

First Golf Tournament

Carl Dorr Shoots 77 in Opener

Y-12'ers inaugurated the golf season with the first tournament Saturday before last at the Gatlinburg Country Club. Turning out in force, 133 golfers started and completed play on this beautiful but challenging course.

Carl Dorr shot a 77 scratch and was only one over par going on the back nine. Other scratch winners in the first division were: William T. Mee, 81, and Roland E. Plemons with 83. Handicap winners found Tom Reed with a low of 75, followed by J. R. George 76, E. N. Rogers 77, and Emerson Henck 79. William F. Jones took the most pars with 11, and H. E. Wright was second with 8.

Boyd Shoots 87

Second Division scratch winners were: John H. Boyd, Jr.—87; T. H. Tabor, Bill Sise and R. G. Babb all tied with a 90. Handicap winners found B. J. Reagan with a 77, Dale Phillips 80, A. H. True 81, and W. G. Butturini 82. Bruce Hogg took the most pars with 6 and Dan Culberson had 5.

In the Third Division, R. K. Johnson took top scratch score with a 93, followed by Hubert Tripp 96, and Burl Henry and Jack Francis tied with 98 each. Handicapwise, it was Jack Cowen and Ken Cook tied with an 83, followed by George Peterson with 84 and Ed Fleischman 86. Fred Wetzel had 6 pars and second place found J. R. Milligan, A. M. Ammons and J. W. Basford tied with 3 each.

Tournament Set For May

In the Fourth Division, Fred Hammond led the scratch winners with 96, followed by Don Rogers 97, while C. S. Strike and Richard Nixdorf tied with 100. Handicap winners found Don Dowry, Jr., B. G. Bowers and Dan Rowan each with 80, followed closely by R. A. Gallman and Robert H. Thompson with 81's. Pars went to Harold Bell and A. M. Wilkey with 4 each.

The next golf tournament is scheduled for Saturday, May 23, 1970, at the Wallace Hills Course in Maryville. Entry blank appears elsewhere in the Bulletin.

NOTICE: Two golf clubs, left on the course at Gatlinburg, are in the Recreation Office, Bldg. 9711-5. Owner may claim by description and identification.

Weathersby Tops April Skeet Shoot

Three Y-12'ers "walked away" with the honors in the monthly All-Carbide Skeet Shoot on Sunday, April 12, at the Oak Ridge Sportsmen's Association field.

W. E. Weathersby took first place with a perfect 50.000. Second place went to Perry Bullard with a 49.482, and Ben Etheredge came in close with a 49.258.

Complete Scores

W. E. Weathersby, Y-12	50.000
Perry Bullard, Y-12	49.482
Ben Etheredge, Y-12	49.258
Fred Welfare, ORNL	49.156
Charles Asmanes, Y-12	48.842
Kenneth Bahler, Gen. Staff	48.649
V. Raaen, K-25	48.267
William Davy, Jr., ORNL	48.179
D. Glovier, Y-12	48.130
Bert Searles, Y-12	48.068
William Davy, Sr., K-25	48.068
Joe Comolander, Y-12	47.469
Tom Webber, Y-12	47.248
Finis H. Patton, K-25	47.248
J. M. Case, Y-12	45.847
Leon M. Bray, Y-12	42.406

Starlite League

	W	L
Woodpeckers	60	24
Hi-Jackers	57½	26½
Has Beens	51	33
Splitters	43½	40½
Thunderbirds	43	41
Dynopaths	37	47
Wild Cats	30	54
Jaguars	15	69

TECHNICAL SERVICES HONORED—The Y-12 Technical Services Division was honored recently with a plaque for an eight-year safety record, establishing well over 9,000,000 man-hours worked without a disabling injury. W. J. Wilcox, Jr., Nuclear Division Technical Director, presents the plaque to G. A. Strasser, division superintendent. Assembled for the presentation were department heads of the division, personnel of the Inspection Group in Alpha One, where the presentation was made, and representatives from Y-12's Safety Department.

THE CARBIDE COURIER

Thursday, May 7, 1970

AWARD RECIPIENTS — From left, J. C. Barton, Superintendent of the Laboratory Division, has presented dollar-award letters to Ralph Wright and George Petit, who were accompanied by C. W. Weber, head of the Chemical Analysis Department.

Patent Application Awards Received by Three at K-25

George Petit and Ralph Wright of the Chemical Analysis Department of the Laboratory Division and James Madix of the Materials Development Department of the Gaseous Diffusion Development Division have received patent application awards for a recent joint development achievement.

This is the sixth patent award each for Petit and Wright and is the second award received by them in 1970. This most recent effort is a typical example of interdivisional cooperation by ORGDP personnel toward the accomplishment of a common goal.

Composite Coating

The patent application, entitled "Deposition from Chemical Plating Baths of Particulate-Containing Alloy," describes a process for the co-deposition of a metal and particulate material to form a composite coating. By the proper choice of particulate material, the process is capable of producing a plated surface with outstanding wear resistance or unusual lubricity.

Madix joined Union Carbide at ORGDP in 1951, after attending Tennessee Tech in Cookeville for two years. By combining credits earned under Carbide's educational assistance program with those earned during a nine-month leave of absence, Madix earned his B.S. in Chemistry from The University of Tennessee in 1963. His wife, the former Julia Moon, was previously employed at K-25 and at AEC-DTIE. They reside at 124 Henley Road, Oak Ridge, with their children Steve 11, Jean 8, Karen 4, and 9-month-old twins Dennis and Susan.

Joined in 1952

Petit has been employed at ORGDP since June, 1952. He presently supervises the Special Problems and Trouble Shooting Group in the Chemical Analysis Department. Petit and his wife, the former Jane Powers, a former Y-12 and K-25 employee, reside at 139 W. Madison Lane in Oak Ridge.

Wright came to ORGDP as an operator in the Vacuum Test Department on January 6, 1945. At present, he is involved in metal finishing and trouble-shooting problems in the Chemical Analysis Department. Wright and his wife, the former Ethel Webb, live at 8011 River Drive, Oak Ridge, with their children, Carl, 17, and Frances, 22 years old.

RECEIVES PATENT AWARD LETTER — James Madix, center, accompanied by H. A. Bernhardt, right, receives his patent award transmittal letter and congratulations from H. E. Trammell, Superintendent of the Gaseous Diffusion Development Division.

Reeve Participates In Audit Seminars

At the request of the U. S. General Accounting Office, Washington, D. C., John T. Reeve, Manager of the Auditing Division, recently participated in a series of seminars together with Francis O. Christie, Chief of the Audit Branch, USAEC, Oak Ridge Operations.

The seminars were set up by Mortimer A. Dittenhofer, Assistant Director, Office of Policy and Special Studies of the U. S. General Accounting Office, Washington, D. C. to brief the chief auditors of the states on the working relationship between a Federal audit group (AEC) and a non-Federal audit group (Carbide Audit). Reeve and Christie discussed this relationship at four meetings before the chief auditors of 40 out of the 50 states. The most recent meetings were held the week of April 20 in St. Paul, Minnesota and in Boston, Mass.

These meetings are part of a comprehensive program being implemented by the Federal Government relative to the expanding Federal assistance programs, currently estimated at an annual rate of $25 billion.

The Federal Government's objective is to improve auditing practices and procedures at the State and local government level so as to reduce the burden on Federal audit staffs, and allow them to more fully utilize the audits made by State and local government groups.

The AEC-Carbide audit relationship was considered by GAO to be a model Government-non-Government relationship and the meetings were successful in illustrating how such a relationship can produce reliable and harmonious results.

Expensive Meal?

As a cafeteria employee was preparing to put some dishes in the dishwasher recently, she saw a sum of money that had been left on a tray. She turned the money in to the Cafeteria Office. At press time, the money was still unclaimed. If the person who left the money will give the date and the approximate amount, it will be return

Fabrication and Maintenance Division Promotes Two Men

Robert Eugene Goodson and Jerry Kenneth Upchurch have recently been promoted in the Fabrication and Maintenance Division.

Goodson was promoted from supervisory trainee to custodial foreman effective May 1. He was originally employed here as a stores clerk on the hourly roll and later worked in the requisitioning section of the Materials Management Department, prior to transferring to the F & M Division.

Goodson is a native of Morristown. He attended Morristown College and Knoxville College and has taken extension courses at UT. The Goodson family still resides in Morristown, at 1409 Brice Circle. Mrs. Goodson is the former Gwendolyn Yvonne Smith of Chattanooga and there are four children — Victor, 11, Eve, 10, Derek, 7, and Angela, 2.

Goodson's outside interests include coin collecting and his church work. He is Superintendent of Study at the Bethel United Methodist Church in Morristown.

Upchurch was promoted on April 20, from carpenter to planner and estimator in the Methods Engineering Department. He has been employed by Union Carbide since April of 1960, first at Y-12 and for the last five years, here at K-25.

Upchurch was born in Jamestown, Tenn. He is married to the former Darlene Seibers of Coalfield and they have a three-year-old daughter, Tanya Renee. The Upchurchs live on Route 3, Oliver Springs. Upchurch's outside interests consist of hunting and fishing.

R. E. GOODSON

J. K. UPCHURCH

Philip J. Mason Earns Master's Degree From UT

P. J. MASON

Philip Jerry Mason, Business Systems Department of the Computing Technology Center, has received his M.S. degree in industrial management from The University of Tennessee. He has been employed here since March, 1967, following graduation from Western Carolina College with a bachelor's degree in mathematics.

Mason was born in Canton, N. C. He resides at 117 Tacoma Road, Oak Ridge. His outside interests include cars, softball, and golf.

SAFETY SCOREBOARD

OUR PLANT
Has Operated
3,554,000 Safe Hours
Through April 30
Since last disabling injury on August 19

Ride wanted from Ford Road, Lenoir City, to Administration Area, 7:45 to 4:15. Dorothy Way, 3-3022, home 986-3288.

Ride wanted from Rose Bailey Lake, Kingston, to Administration area, 7:45 to 4:15. Steve Brackett, 3-3206.

Ride wanted or will join carpool from Gulf Park Subdivision (West Knoxville) to Portal 5, 8:00 to 4:30. Jim Rogers, 3-3341, home 588-0305.

Lab Notes

Mrs. Donald S. McGlasson

Mrs. Betty L. McGlasson, wife of Donald S. McGlasson, Gaseous Diffusion Development Division, has been appointed new Home Demonstration Agent for Roane County.

Mrs. McGlasson, who resides in the Roane County section of Oak Ridge, assumed the duties March 1. She is a graduate of Purdue University, with a major in Home Economics and five science minors.

The local Home Demonstration Agent's office is in the Roane County Education Building in Kingston.

★ ★ ★

K. T. Ziehlke, Metallurgical Services Department, presented a talk at the 7th Annual Educational Workshop, sponsored by The American Society for Nondestructive Testing, on March 24 at the Oak Ridge High School. The title of his talk was "Frequency Spectrum Analysis of Compressor Blades."

★ ★ ★

The Ed Ingrams are the proud parents of their first baby, a girl, born April 16 at Harriman Hospital. They have named her Cynthia Rosemary. Mother and daughter are doing fine.

★ ★ ★

Evelyn Cole, with other officials of the K-25 Credit Union attended a State Credit Union Convention in Memphis April 16 through 18. She reports that they had a very enjoyable time and that the convention was very informative.

Engineering

By F. Dodge

N. B. Schultz, Head of Safety, Health Physics and Industrial Hygiene Department, was the guest speaker at the recent safety meeting of the Instrument and Electrical Engineering Department. Employees of the Machine Engineering Department were guests at the meeting.

Schultz's subject was "Environmental Health and Safety at K-25." He pointed out that K-25 is very similar to a municipality —we have our own Health Department, ambulance service, fire and police protection, and a water and sewage system. In addition to the normal checks for air and water pollution, we are given physical checks. Constant surveillance of our working conditions has paid off in an exceptionally high safety record among comparable industries.

We appreciate Schultz's informative and most worthwhile talk and presentation of the colorful slides—the consensus of opinion is that it was one of our most interesting meetings. Thank you Mr. Schultz, please come again soon.

K-25ers To England For Wedding of Son

George and Elsie McKeethan returned April 2 from a trip abroad which was highlighted by the marriage of Miss Valerie Ann Bryant of Newmarket, England, to their son, Air Force Sgt. William T. McKeethan at St. Mary's church in Newmarket on March 21.

In addition to spending several days in England, Mr. and Mrs. McKeethan extended their trip to include Scotland, Ireland, France, Belgium, the Netherlands, Germany, and Switzerland. In their words, "One of the biggest thrills was the flight from New York to London on the 747, and about the most frustrating experience was driving on the left in Great Britain."

"In addition to visiting the well-known attractions in the larger cities such as London, Paris, Edinburg and Amsterdam Lucerne, it was a thrill to drive through the countryside and see the windmills and canals in Holland, the villages in France and Germany, the mountains in Switzerland, and the homes with thatched roofs in Ireland, just to mention a few things," they tell us, and added that they would like to take another similar and more extensive trip some day, but with more time and more stored-up energy.

McKeethan has been a machinist in the Fabrication and Maintenance Division since 1950; Elsie has been with the company since 1952 and is presently Secretary to J. H. Junkins, Technical Information Department, Laboratory Division.

SGT. AND MRS. WILLIAM T. McKEETHAN

K-25ers Guide Hornets To Biddy League Title

The West Haven Hornets, coached by two employees, are this year's basketball champions in the West Haven Biddy League. Participation in this league is limited to boys between seven and ten years of age.

Wayne Neff of the Chemical Analysis Department and Herschel McCollum of the Auditing Department directed the team to a season record of seven wins and two losses.

Outstanding point scorers for the year were D. McCollum, K. Wilmouth, R. Neff, and M. Krenshaw, but all members of the team worked together to earn the honor of being number one in the league, the managers said.

Ride wanted from 4309 Lamour Drive, Bearden area, Knoxville, to East Portal, straight day. Lloyd Krohn, plant phone 3-5226, home phone Knoxville 584-7652.

Ride wanted from Lake City to West Portal. Mrs. Karen Watson, plant phone 3-7430, home phone Lake City 5533. As alternate, would take riders.

A CLEAN PLANT IS A SAFE PLANT. — This background of beauty, order, and cleanup activities highlighted by springtime is a fine reflection of the many lasting accomplishments by K-25 employees through their continuing efforts to maintain a safe and productive work environment. During April, when considerable re-emphasis was placed on housekeeping improvements, many of our employees made special contributions to improving the plant's appearance. Generally, the gains were achieved through the frequent use of trash receptacles and by hauling excess items to the Salvage Yard. The two Fabrication and Maintenance Division employees providing the spring cleanup action in the Salvage Yard scene are Paul Moore and D. L. Littleton of the Power and Utilities Department. The employee working to preserve the beauty of our shrubs is R. C. Hammonds of the Grounds Department.

Nominated by Jaycees

Woodfin Named Outstanding Young Man by Publication

The Kingston Jaycees announced recently that Sam B. Woodfin has been selected for inclusion in the 1970 edition of "Outstanding Young Men of America."

Nominated earlier this year by the Kingston Jaycee Chapter, Woodfin is an Associate Chemist in the Chemical Analysis Department of the ORGDP Laboratory Division, where he has been employed for 15 years.

"Outstanding Young Men of America" is an annual biographical compilation which features the accomplishments of approximately 5,000 young men of outstanding rank throughout the country. Nominations for the awards publication are made by Jaycee chapters, college alumni associations, and military commandants.

Based on Service, Career

Criteria for selection includes a man's service to others, professional excellence, business advancements, charitable activities, and civic and professional recognition. The men chosen are between the ages of 21 and 36.

This will be the sixth edition of this annual biographical compilation, which is sponsored by a nonprofit organization — the Outstanding Americans Foundation. Publication date will be May 30, 1970.

Woodfin received the 1968 Award as Kingston's Outstanding Young Man. He received a blazer from the Tennessee Jaycees for his outstanding service as a state officer and won a second blazer from the U. S. Jaycees when he was selected as one of the top Jaycee leaders among the State Vice-Presidents and National Directors of the U. S. Jaycees.

Has Many Activities

Woodfin's activities in the community include: adult leader in 4-H club work; president of the Kingston Elementary, Junior High and Senior High PTA for two years; Chairman of the Roane County Jury Commission; member of the Kingston City Park and Recreation Commission; Board of Directors of the Roane County Unit of the American Cancer Society, of which he has served as president; serving the Kingston Jaycees in practically every capacity including president; and serving as a state officer for the Tennessee Jaycees.

Within the local Jaycee Chapter, Woodfin has served as chairman of such activities as Biddy Basketball, Junior Track and Field Meet, Easter Egg Hunt, Christmas Parade, Christmas Shopping Tour for Needy Children, Halloween Candy Sale, and Labor Day Ski Show. Woodfin is the founder of the Annual Easter Egg Hunt and of Dixie Youth Baseball in Kingston.

Woodfin, who resides in Kingston Heights, just outside of Kingston, is married to the former Alice Ann Hunter. They have two children—Sammy, 13, and Lizanne, 10. Both are natives of South Pittsburg, Tenn.

SAM B. WOODFIN

K-25 Employees Support Group Aiding Retarded

At least five employees at K-25 are active members of the Anderson County Association for Retarded Children and Adults. These people give their time and energy toward the operation of a nursery school during the school year and a summer playground for retarded children. The five members of ACARC from K-25 are Robert Carter, Tom Douglas, Douglas E. Fain, R. V. Thatcher, and Guy Turner.

The Association for Retarded Children is one of the agencies supported by our contributions to the United Fund.

THE CARBIDE COURIER
Published Biweekly
Editor ..... H. J. Mayberry
K-1002 Building, Tel. 3-3097

LSD -- Answers to Tough Questions

By T. A. LINCOLN, M.D.

After viewing the movie, "LSD," recently shown in a number of locations in Oak Ridge, one parent asked her son what he thought of it. He replied: "They didn't tell about the good things!" The idea that her son could think that such a "dangerous" drug could possibly have a "good" side greatly distressed her.

Parents, teachers and physicians who "preach" the dangers of LSD, marihuana or other psychedelic drugs are frequently "turned off" by teen-agers. They believe their parents are unnecessarily frightened. Young people may have had personal contact with many of their peers who have experimented with LSD and have had no obvious ill effects.

Dr. Lincoln

In a questionnaire survey of 127 professionals involved in research with psychedelic drugs such as marihuana, LSD, mescaline or psilocybin, Walter H. Clark and G. Roy Funkhouser found a number of areas in which these drugs may prove to be useful. Reported in the April, 1970, **Psychology Today,** 86 percent of researchers thought these drugs were useful in the study of physiological and mental processes, 68 percent in psychotherapy in general, 69 percent with incurably ill or terminal patients, 57 percent in the treatment of alcoholism and 51 percent felt they might be useful in art and music.

Evangelical Investigators

The qualifications of the researchers were not listed, but they were professional people, usually in psychology or psychiatry. Since some investigators are almost evangelical about LSD, they could hardly be considered objective. Nevertheless, it is clear that some competent people feel that LSD may be useful.

Rather than wringing your hands in front of your adolescent children about the "dangers," calmly list the known hazards of the illicit drug being discussed. Be as knowledgeable about the hazards as they are. Many young people are well informed and to rigidly adhere to an obviously incorrect fact, even though a minor detail, will destroy your case. Don't generalize about "drugs." Be specific. Don't depend on one source of information. The following material contains several of the important points to cover.

LSD may be habit-forming but it is not physically addicting. Some tolerance to the drug may develop, but it is unusual, perhaps because most users take it only on weekends.

Occasionally a person will become psychotic under the influence of LSD and will remain severely ill for many months. Also, strange psychotic episodes have occurred many months after the last dose of LSD. These mental illnesses are more likely in unstable individuals, but no one has developed a test to determine accurately who is vulnerable. Psychoses have occurred after 100 "safe" trips. These effects are not rare but are also not common.

Cause for Concern

The presence of abnormal electroencephalographic patterns in chronic LSD users is cause for concern. Even here, the effect seen cannot be solely attributed to drug use. The possibility of permanent brain damage, not unlike the chronic brain syndrome in alcoholics, is worrisome. A person's brain is his most priceless asset.

The argument that alcohol and tobacco are physically more harmful than LSD is not hard to answer. All are potentially dangerous. Since LSD tends to distort reality more at an extremely low dose level, its immediate hazards are greater. Most people who drink alcoholic beverages retain reasonable contact with reality until they become quite intoxicated. Their judgment may be impaired but the distortion of the sensory input is often mild. Under LSD, some people may become so confused after a single dose that they cannot function. They may not be aware that they are still under the influence of the drug whereas those who have been drinking usually are. LSD can be given in food to an unsuspecting person. Alcohol causes physical or mental injury not related to accidents only after prolonged and excessive use. LSD could cause permanent injury after the first use. The effect of LSD lasts for several days, while alcohol is metabolized fairly rapidly.

The evidence that LSD causes genetic damage is controversial. The most recent study by a group from the University of British Columbia, reported in the April 23, 1970, **New England Journal of Medicine,** found no difference in the frequency of chromosome breaks between samples obtained immediately before and 24 hours after taking 200-600 micrograms of pure LSD. Several other studies have found chromosome breaks after illicit use of LSD. The evidence that LSD adversely affects the germ cells is still sparse. Nevertheless, there is reason for concern.

Young people today have access to a fantastic assortment of exciting and mysterious mood-altering drugs. It is naive to think that the supply can be dried up by hysterical legal control. Since it probably is too late to instill responsible behavior in young people who don't already have it, we need to educate them on illicit drug effects and provide psychiatric treatment for those who need and want help. We must expect to lose a few by the wayside.

Two Appointed To New Posts In Corporation

The appointments of Dwight N. Wait as president and Charles B. Lindner as executive vice-president of the Fibers and Fabrics Division of Union Carbide Corporation have been announced by Birny Mason, Jr., chairman of the board of Union Carbide.

Dwight Wait

Mr. Wait joined Union Carbide in 1937 as an engineer in the corporation's Eveready battery plant in Cleveland. During his career with Union Carbide, he has served in various management capacities in the carbon products and consumer products areas of the corporation's business, in the United States as well as in India and Africa. He was appointed vice-president — production for the Consumer Products Division in 1962, vice-president—marketing in 1964, vice-president and general manager—automotive products in 1965, and executive vice-president in 1966.

Charles Lindner

Mr. Lindner became associated with Union Carbide in 1948 as an engineer at the corporation's carbon products plant in Fostoria, Ohio. In his early years with Union Carbide, he was identified mainly with the carbon products area of the corporation's business, serving in management positions in the United States and in England. His work covered a wide range of activity, including engineering, production, marketing, and accounting. In 1965, he moved to the Consumer Products Division as a product manager and the following year became director, special operations for the division. Mr. Lindner was born in Larchmont, N. Y. He is an alumnus of Lehigh University, where he received the degree of B.S. in industrial engineering in 1948.

SNOW JOB

Detroit's Metropolitan Airport found a soft way to handle the hard job of snow control. It equipped the entire fleet of 22 snow plows with chemically-made synthetic rubber blades. Replacement costs were cut by 80 per cent, runway damage is almost nil, snow plow speeds of up to 40 mph can be achieved, and crews have the capability of [illegible]noving as much as 3,250 [illegible]ow an hour.

Sale of Savings Bonds to Help Country Started in Revolution

Although May 1 marked the 29th anniversary of the modern Savings Bond Program, the sale of Treasury bonds to individual citizens dates back nearly 200 years.

Since 1776 they have been sold to every generation of American families to finance wars, acquire and develop territories, build railroads, construct canals, and buy new lands beyond our borders. One such purchase—Alaska for $7.2 million—resulted in our 49th state nearly a hundred years later.

House-to-House Selling

From issues sold during the Civil War, the Treasury observed that the technique of personal salesmanship — house-to-house selling — was highly effective. This knowledge was later used to help finance World Wars I and II, when hundreds of thousands of volunteer salesmen took bond orders.

The Treasury learned further —from issues sold during the Spanish American War — that small denomination bonds had a ready market. So popular was this new type of bond that more than 250,000 people subscribed to issues that ranged from $20 to $300.

During World War I, as in all preceding years, only marketable securities were offered. This brought unhappy results for many, who did not understand the type of security they were buying. People who needed the money before their government bonds reached maturity found, when they went to sell their holdings, that they could be sold only in the financial markets, sometimes at substantial discounts that dipped to a low of 82 cents on the dollar.

Because of this experience, the Treasury determined in 1935 to offer the nonprofessional buyer a savings-type bond with a schedule of fixed redemption values, cashable at any time after a short initial holding period. It was issued in registered form only, was nonnegotiable, and could be replaced in the event of loss or destruction.

First Savings Bonds

These "baby bonds," as they were commonly called, were really the first of the Savings Bonds. Issued in denominations from $25 to $1,000, they were sold at 75 percent of face value, and returned 2.9 percent interest when held for the full 10-year maturity. Their sale in 14,000 post offices and in the office of the Treasurer of the United States was promoted through direct mail and magazine advertising, instead of through the usual investment market channels.

In approximately six years, from March 1, 1935, through April 30, 1941, sales of Series A, B, C, and D bonds totaled nearly four billion dollars. Amazing enough, nearly seven million dollars' worth are still held by their owners, despite the fact that the last "baby bond" issued ceased to draw interest in April 1951.

The Treasury decided early in 1941 to expand its savings program by enlisting the help of volunteers, as it had done to promote the Liberty Loans of World War I. Facing another global conflict, the nation was arming hastily. The national debt was expanding fast, and the danger of inflation was growing as defense spending poured money into the economy and diverted consumer goods and services from the market.

The E Bond came into being at this time. It was sold at ¾ of face value and returned 2.9 percent interest when held for the full 10-year maturity. Five denominations were offered in the beginning: $25, $50, $100, $500, and $1,000. The $200 bond was added in 1945, the $10,000 bond in 1952, and the $75 bond in 1964.

In the past 29 years, more than three billion Series E Bonds have been sold—two-thirds of them of the $25 variety. The pre-war "baby bond" has grown up to a full-fledged adult, returning a modern 5.20 percent interest when held to maturity. But it's still the favorite of the small saver—to buy a college education, to make a down payment on that first home, to provide a luxury vacation, or simply to meet family emergencies.

Donors Give Blood

(Continued from Page 1)

used under the program, which automatically covers all Oak Ridgers (including those living in Roane County) and residents of Anderson County. Residents of other counties may qualify themselves and their families for six months by giving a pint of blood.

Under the new program, eligible persons needing blood can receive it whenever they need it and wherever they need it. Red Cross volunteers and staff handle necessary arrangements. In effect, the cost for a pint of blood has been reduced from about $60 to about $30.

Union Carbide, Japanese Company Plan Production of Molecular Sieves

An agreement between Union Carbide Corporation and Showa Denko K.K. to form a $2 million joint venture for producing molecular sieves in Japan was announced today by Birny Mason, Jr., chairman of the board of Union Carbide, and Masao Anzai, president of Showa Denko.

The joint venture company, to be known as Union Showa K.K., will build a plant near Nagoya, Japan. The plant is expected to be completed during the third quarter of this year.

Molecular sieves are porous crystalline materials that remove moisture and other impurities from liquids and gases and also separate materials of different molecular size. Union Carbide, through its extensive research into new technology in gas manufacture, was the originator of these interesting materials, which are used mainly by the petrochemical, natural gas, and petroleum refining industries. The new plant will use Union Carbide's latest manufacturing and technological know-how.

The new company will be the fifth joint venture in Japan with which Union Carbide is associated. The others are a recently announced phenolic resins plant, a major low-density polyethylene complex, a flame-plating facility, and a company offering a broad range of ocean engineering capabilities.

LIBRARY LISTINGS

As a continuing service, Nuclear Division News will publish representative lists of recent acquisitions by the libraries at the Oak Ridge facilities.

Oak Ridge Gaseous Diffusion Plant

LSD-25; A Factual Account. Layman's Guide to the Pharmacology, Physiology, Psychology and Sociology of LSD. U. S. Bureau of Narcotics and Dangerous Drugs.

New Power for Management; Computer Systems and Management Science. D. B. Hertz.

Problems of Heat Transfer and Hydraulics of Two-Phase Media; A Symposium.

Halides of the First Row Transition Metals. R. Colton.

A Directory of Information Resources in the U. S.: General Toxicology. U. S. Library of Congress. National Referral Center for Science and Technology.

Oak Ridge National Laboratory

Biology and Populations; the Biological Basis of Public Health. Brenda K. Sladen and Frederick B. Bang, Eds. (Biology, 9207, Y-12 Area).

Modern Separation Methods of Macromolecules and Particles. T. Gerritsen, Ed. (Series: Progress in Separation and Purification.) Vol. 2. (Biology, 9207, Y-12 Area).

Congenital Defects. Lauri Saxen and Johani Rapola. (Biology, 9207, Y-12 Area).

Guide to Precautionary Labeling of Hazardous Chemicals, 7th Ed. Manufacturing Chemists Association. Labels and Precautionary Information Committee. (Technical, 9711-1, Y-12 Area).

The Solar System and Back. Isaac Asimov. (Technical, 9711-1, Y-12 Area).

Advances in Catalysis and Related Subjects. D. D. Eley, Ed. (Technical, 9711-1, Y-12 Area).

Transfer and Storage of Energy by Molecules. George M. Burnett and Alastair M. North, Eds. (Technical, 9711-1, Y-12 Area).

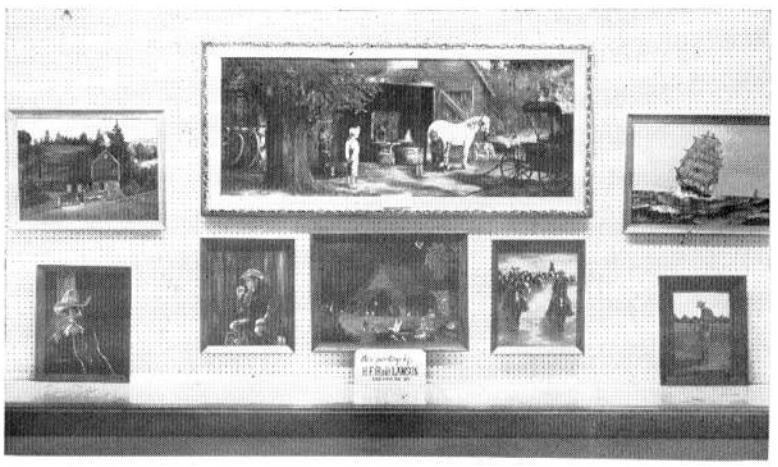
Techniques of Metals Research, Vol 2A — The Stereographic Projection and Its Applications. O. Johari, G. Thomas, R. F. Bunshah, Eds. (Technical, 9711-1, Y-12 Area).

Mechanical Engineers To Hear Rep. Duncan

Representative John Duncan will be the featured speaker at the combined Spring Annual Meeting of the East Tennessee and Oak Ridge Sections of the American Society of Mechanical Engineers on Thursday, May 21.

The meeting will be held at the Deane Hill Country Club in Knoxville, and the public is invited. Reservations are required, and further information may be obtained by calling Elaine Collins at extension 3-6215.

The meeting is a ladies-night affair, and will start with a social hour at 6:30 p.m. Dinner will be at 7:15 p.m., and the program will begin at 8 p.m. Charles H. Weaver, Chancellor of The University of Tennessee Knoxville Campus, and Roy J. Fisher, Manager of Tennessee Operations, Alcoa, are expected to participate in the evening's activities. Two special awards, a Fifty-Year Pin and a Certificate of Fellow Grade, will be presented at the meeting.



OIL PAINTINGS — H. F. Lawson recently displayed oil paintings in the K-25 Cafeteria. He works at K-25's Paint Shop and does work like the above in his spare time at home. Nice one-man exhibit, isn't it?

Biosynthetic Foods of Future

by Glenn T. Seaborg

If we are going to adequately feed the world population of the future we may have to develop sources of food beyond our conventional agriculture and reliance on the sea. The biosynthetic production of food may provide one answer for creating the healthy diet of the future.

Dr. Seaborg

While the idea of using tiny microorganisms — bacteria molds and fungi — to produce human food directly is difficult for some people to accept, these tiny forms of life may prove to be our best source of protein and other nutrition some day. And we should remember that we already use similar microorganisms to produce some of our foods — our bread, cheese, beer, and wine.

The idea of mass-producing biosynthetic food by growing the bacteria on waste products is being seriously pursued. One type of dried yeast, which is a product of waste sulfite and pulping liquors, is already in use as a food and a feed supplement for livestock. The protein in one pound of this dried yeast is equivalent to 5½ quarts of milk, 2⅓ pounds of beefsteak, nearly 6 pounds of rice, and 23 pounds of leafy vegetables. The bacteria that make this yeast produce proteins faster than any plant or animal on earth.

A pilot plant is being built in Mississippi that will use another kind of microorganism to break down cellulose into digestible high-protein foods. This means that such waste materials as sugarcane stalks, corn cobs, rice straw, grass, leaves and even sawdust may someday become highly nutritious food.

Another process for making biosynthetic food from waste uses a wax-like substance extracted from crude oil. This method makes it possible to produce from 100 tons of crude oil, ten tons of protein and 90 tons of wax-free petroleum. Employing this process, a British company is building a plant near one of its oil refineries in France which will be able to produce annually 16,000 tons of a protein-rich livestock feed. Experiments have shown that the farm animals thrive on such feed.

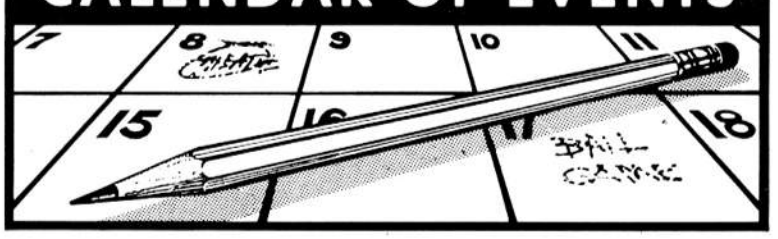
The next stop may be to make similar biosynthetic food available to humans. To do this we may also need quite a bit of science to make it as attractive as our old-fashioned steak and potatoes — even if it proves much cheaper than today's hamburgers.

UNION CARBIDE CORPORATION
NUCLEAR DIVISION
P. O. BOX Y, OAK RIDGE, TENNESSEE 37830

RETURN REQUESTED
(Do Not Forward—Return Postage Guaranteed)

BULK RATE
U.S. Postage
PAID
Oak Ridge, Tenn.
Permit No. 71

CALENDAR OF EVENTS



COMMUNITY

May 8-9

The Oak Ridge Community Playhouse presents two final performances of "The Dybbuk" — a very different love story. Oak Ridge Playhouse, 8:20 p.m. Admission: $2.

May 16

The Oak Ridge Section of the American Society for Nondestructive Testing announces Annual Ladies Nite. Dinner and entertainment. Oak Ridge Country Club Gold Room, 7:00 p.m. $5 per couple.

May 16-17

The Oak Ridge Junior Playhouse presents the "Great Grizzly." Oak Ridge Playhouse, 1:00 and 3:00 p.m. Admission: $.75.

May 17

The Oak Ridge Art Center Film Club presents the Polish film, "Joan of the Angels?" Jefferson Junior High School, 8:00 p.m. Admission: Adults $1; Students $.75.

May 7-24

Prints from Barkley, Ltd. Oak Ridge Community Art Center. Admission: $.50 to nonmembers.

TECHNICAL

May 8

Physical Division Seminar: "On the Nucleon-Nucleon Interaction off the Energy Shell," Dr. Drechsel, University of Virginia. East Auditorium, 4500-N, 3:15 p.m.

UT-AEC Agricultural Research Laboratory Seminar: "Culture of Human Diploid Cell Strains with Genetic Markers," Carmen B. Lozzio, of The University of Tennessee Memorial Research Center. UT-AEC Conference Room, 3 p.m.

May 13-16

Conference on Morphology of Experimental Respiratory Carcinogenesis, sponsored by ORNL and National Cancer Institute. Riverside Motor Lodge, Gatlinburg.

May 14

Thermonuclear Division Seminar: "Production and Control of Small Charged Particles (Pellets)," Charles Hendricks, of Electrical Engineering and Nuclear Engineering Departments, University of Illinois. Large Conference Room, Building 9201-2, Y-12, 10 a.m.

May 15

UT-AEC Agricultural Research Laboratory Seminar: "Resources and Programs of the Institute of Agriculture," Webster Pendergrass. UT-AEC Conference Room, 3 p.m.

May 18-21

Photosynthesis Conference, sponsored by ORNL. Mountain View Hotel, Gatlinburg.

May 20

Noel L. Warner, of The Walter and Eliza Hall Institute of Medical Research, will speak on "Plasma Cell Tumors and Autoimmunity in Mice." Cancer Research Journal Club Seminar. First Floor Tower Annex Conference Room, Building 9207, 12:15 p.m.

ATTORNEY NAMED 'BOSS OF YEAR' — The Oak Ridge Chapter of the National Secretaries Association has selected Attorney J. B. Scott to receive its "Boss of the Year" Award. Scott was chosen for his active interest in, and support for, programs to elevate secretaries. Pictured with the recipient, from left, are: Mrs. Scott: Mrs. Winzle Shockley, Scott's secretary; and Mrs. Martha Lyle, President of the Oak Ridge Chapter, National Secretaries Association.

NEWS

Published Bi-Weekly For The Employees Of
UNION CARBIDE CORPORATION
NUCLEAR DIVISION

JAMES A. YOUNG ..... *Editor*

Member *Appalachian Industrial Editor's Association*
American Association Industrial Editors

OFFICE
Post Office Box Y
Oak Ridge, Tenn. 37830
Telephone 3-7100 or 3-5345